



# RipariaNews

Newsletter of the Coyote Creek Riparian Station

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## COYOTE CREEK - A LEGACY OF CHANGE

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**C**oyote Creek has undergone tremendous change within the last five years - all brought about by the hands (or more properly, the equipment) of man. Massive levees 14 feet high now encircle the river. Where large continuous stands of stately cottonwoods and willows once lined the banks on both sides, in some areas, these trees have been replaced by rock-lined cavities called "cross-overs". Where once a meandering channel wound its way leisurely to the Bay, a straightened, more orderly channel now flows in an entirely new way. A salt pond, in operation since the 1920's, was sliced nearly in half by a new levee

<sup>1</sup> This article could not have been written without the help of Cindy Roessler, Assistant Environmental Specialist, Santa Clara Valley Water District and Linda Spahr, Revegetation Specialist, Habitat Restoration Group.

and a football field-sized sludge lagoon, owned by the City of San Jose disappeared completely.

Not many will mourn the loss of a portion of a salt pond and fewer still will be upset over the taking of a sewage sludge lagoon. It is, however, quite another matter when old growth riparian habitat is lost - trees and shrubs which support teeming populations of wildlife and provide oxygen for our embattled atmosphere, shade for our beleaguered fisheries.

During the course of our work on Coyote Creek we have often been asked by nature-loving visitors why such seemingly wanton destruction of such a vital natural resource was allowed to happen; and furthermore, what are we doing about it?!

This article is an attempt to provide some perspective on what has come to be known as the "Coyote Creek Flood Control Project."

### A CREEK WITH A HISTORY OF REBELLION

After many years of drought, it is hard for many of us to relate to the fact that most of Santa Clara Valley lies in a massive floodplain. One of the reasons agriculture flourished here for so long was because of the fertile soils deposited by many centuries of silt-laden waters escaping the banks of our rivers and streams. As these floodwaters broadened they also slowed, allowing the fine silts to settle out - layer upon fertile layer.

The early residents of the San Francisco Bay, the Ohlone Indians, understood the need for mobility during the winter rainy season, moving their camps to higher ground when rain-swollen creeks threatened to rebel against confinement. Early farmers, Spanish and Mexican settlers, also accepted the inevitability of winter flooding.

However, as agriculture became a dominant force in Santa Clara County's economy, both the development of water delivery systems and protection of valuable crop lands from periodic flooding became important. Some of the first irrigation canals were constructed in the Evergreen area of San Jose in the 1850's. About the same time, farmers began building makeshift levees around rivers and streams to contain the sometimes rebellious flows within the river's natural channel.

As agriculture pushed closer to the fringes of San Francisco Bay, additional useful land was gained by clearing the floodplain of unwanted trees and shrubs. Willow thickets were cut down or burned; large stands of Valley and live oaks were cut down for firewood and to yield additional cropland; small meandering tributaries of the main river channel were dammed and filled to yield still more land for crops.

Wells were sunk into the Valley's extensive shallow aquifer system. In many places wells were not even necessary since artesian springs literally gushed from the porous rock of the Mount Hamilton Range.

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## **THE NEED FOR FLOOD CONTROL**

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This process continued unabated, and for the most part, undocumented well into the early 1900's. Soon, the Santa Clara Valley became known throughout the world for its lush fruit orchards, vineyards and farms. In 1911, a series of enormous storms dumped huge quantities of water into both Coyote Creek and Guadalupe River causing both streams to overflow

their banks. Many acres of farmland and most of "downtown" San Jose were engulfed in raging flood waters (U.S. Army Corps of Engineers. 1970). Agricultural interests and the developing business community in San Jose attempted to form a water and flood control agency soon after the disastrous floods of 1911, but World War I intervened. It was not until 1929 that a local water agency (the Santa Clara Valley Water Conservation District) was given voter approval (Melton. 1978).

One of the first tasks of this new water conservation district was the design and construction of the Valley's first reservoir system. One of first of six dams built by the District was the Coyote Dam and reservoir near Morgan Hill. This reservoir was designed to contain and store runoff from the Mount Hamilton Range. It also provided some flood control protection for the increasing number of residences and businesses being built in the floodplain of Coyote Creek.

San Jose and the surrounding communities continued to prosper. Agriculture continued to flourish, using more and more water for irrigation. At the same time, Santa Clara Valley began developing a manufacturing base and with that base came more workers and increased demands for household and manufacturing uses of water. Gradually, imperceptibly at first, but with ever increasing magnitude, the ground under many portions of the Santa Clara Valley began to sink. So much water was being withdrawn from shallow underlying aquifers (on which the ground literally floated), that from 1916 to 1975 north San Jose sunk 12.7 feet (Poland and Ireland. 1980).

In April of 1958, when subsidence was occurring at a rapid rate, another series of major storms hit the San Jose area. Coyote Creek and Guadalupe River again jumped their banks but this time much of the rapidly urbanizing area of San Jose was 5 to 11 feet lower than it had been in the major storms of 1911. Major flood damage occurred. Estimates ranged from \$30 to \$50 million in property damage.

This flood prompted a major flurry of flood control projects initiated by the recently (1951) formed Santa Clara County Flood Control and Water Conservation District. Many of the smaller streams which crossed the valley floor were straightened and lined with concrete to allow for efficient removal of stormwater runoff. Runoff from streams was also on the increase because so much of the Valley's once fertile soil had been covered by houses, factories, roads and other impervious surfaces. Rainwater was now funnelled into storm drains which emptied directly into creeks and streams. This caused high, short duration peak flows which most of the natural streams could not handle within their main channels. Taken together with the fact that the ground was now 5 to 12 feet lower, much of Santa Clara County was in immanent danger of flooding.

One other factor also contributed to the Valley's precarious flood situation. Prior to 1930, when runoff carried by streams and creeks reached the extensive marshes bordering the San Francisco Bay, it flowed through countless small tributaries and onto marsh plains allowing the fast moving water to slow, drop sediments and disperse, thus lessening the streams tendency to jump its banks and flood adja-

cent lands. Beginning in the mid-1930's most of these marshes had been diked and converted to solar evaporation ponds for salt production. Rivers and streams were routed through this pond system until they reached deeper waters of San Francisco Bay. To protect their salt ponds from freshwater stream flows, the salt companies built extensive levees, annually dredging and adding fill to those levees which appeared subject to overtopping during peak winter flows. Since flood waters could no longer flow out into the many tributaries, tidal sloughs, and marshes, low lying areas further upstream - without the benefit of tall protective levees - received the full force of nature's whims.

## THE STAGE IS SET FOR EL NIÑO

Many different factors conspired to produce record flooding of Coyote Creek in March, 1983. Subsidence had lowered ground levels adjacent to Coyote Creek be-



Aerial view of Alviso looking east. This photograph was taken several days after the major flood event of 3 March, 1983. Guadalupe Slough and a portion of a salt pond are visible in the foreground. Photo courtesy of the Santa Clara Valley Water District.

tween 5 to 11 feet. The rapidly expanding San Jose urban area had allowed housing and industry to occupy land known to be susceptible to flooding. Increased urbanization contributed also to in-

creased storm water runoff into all major rivers and streams, but Coyote Creek had managed to escape major channelization activities - so widespread during the early "boom years" of the 1960's and 70's. Heavy rains in 1982 had left Coyote's upstream reservoirs (Anderson in particular) filled during much of the dry season and early rainy season. The marshes near the

mouth of Coyote Creek (which historically had dispersed and slowed Coyote's flood waters) had long since been converted to salt ponds, sludge drying lagoons for the Cities' of San Jose and Santa Clara sewage treatment plant, and dumps.



Aerial photograph of highway 880 during the height of March 3, 1983 flooding. The old Milpitas sewage treatment plant is in the upper right corner and drying lagoons of the San Jose/Santa Clara Water Pollution Control Plant are visible in the upper left corner. Photo courtesy of the Santa Clara Valley Water District.

For four consecutive days in late February, rain fell almost unceasingly and Coyote Creek began to rise. March 1 and 2 a total of six inches of rain caused Coyote Creek to jump its banks near what is now CCRS's headquarters and at another location upstream at Agnews State Hospital. On March 3 the town of Alviso was flooded with areas west of the Southern Pacific rail line submerged to a depth of seven feet. The flood forced the evacuation of as many as 5,000 people. By the time the flood waters receded or were pumped out (the areas west of the railroad tracks had to be pumped out since, at the time, there was no outlet to drain waters from this artificial basin) an estimated \$6.0 million dollars in property damage had resulted (U.S. Army Corps of Engineers. 1977).

Although preliminary planning for a flood control project had begun as early as 1948, serious progress was not made until the 1969 flood. The 1983 flood kicked the

process into "high gear".

## THE ENVIRONMENTAL REVIEW PROCESS

The U.S. Army Corps of Engineers, as the responsible federal agency for flood control, developed a number of plans to deal with flooding of Coyote Creek, and the Guadalupe River. Because of various federal and state laws which mandated that environmental concerns be addressed during the planning process, a great deal of information on the natural plant and animal communities was gathered. This information clearly demonstrated that Coyote Creek possessed important biological and recreational characteristics worth preserving. The problem soon arose as to how best to provide flood control protection and at the same time preserve the integrity of what the Corps scientists termed the "last remaining natural and basically unaltered tributary of the San Francisco Bay" (U.S. Army Corps of Engineers, 1987).

The final plan chosen by engineers from both the U.S. Army Corps of Engineers and the Santa Clara Valley Water District (the local project sponsor) made use of an overflow channel on alternating sides of the creek and a system of earthen levees. This plan would protect the majority of the riparian vegetation but wherever the overflow channel was taken from one side of the creek to another (alternated) all vegetation at the "cross-over" would be removed and the channel lined with rock rip-rap to allow for efficient passage of water during flood events. Also this plan entailed "straightening" several sections of the creek which also necessitated removal of vegetation.

Other plans were considered during the lengthy environmental and economic review process. The least environmentally damaging alternative entailed a one bank widening with an overflow channel on only one side. This alternative, however, was deemed vastly

more expensive because of differing land values in certain areas within the project corridor. Economic considerations, in this case, were too compelling. Conversely, plans were investigated which were much more environmentally damaging than the chosen alternative. These included extensive areas of channel reinforcement (sack concrete or trapezoidal concrete channel) which would not necessitate acquisition of land for use as overflow channel.

The Corps then turned to the U.S. Fish and Wildlife Service for assistance in determining how to compensate or "mitigate" lost habitat value. Biologists from the Sacramento office of the Fish and Wildlife Service enlisted the help of local experts (CCRS's founder Dr. Richard Mewaldt among them) to conduct a Habitat Evaluation Procedure (HEP) of the proposed mitigation efforts. In essence, this procedure uses the value of the existing habitat for certain key indicator animals (and occasionally plants) as a starting point. Losses in



The historic Bayside Canning Company building (home of the San Francisco Bay Bird Observatory) appears to float on seven foot deep flood waters after torrential rains in March 1983. Photo courtesy of the Santa Clara Valley Water District.

habitat due to development (such as channel straightening or cross-overs) are given a numerical value (**Habitat Units**) based upon the amount of habitat lost and the value of that habitat. This estimated figure is then subtracted from the value of the existing habitat and projected many years into the future. Gains in habitat value from revegetation and intensive management are then added back into the equation yielding an indication of whether, over the life of the project, habitat values lost by the initial construction are regained through re-planting efforts.

In the end, it was determined that 32 acres of newly created riparian habitat would compensate for the loss of 5.6 acres of the same habitat type.

In addition to the loss of riparian habitat, the proposed flood control plan would also eliminate habitat used by the endangered salt marsh harvest mouse (*Reithrodontomys raviventris*), and

reduce habitat for two candidate species for endangered status - the Salt Marsh Yellowthroat and Tricolored Blackbird. The necessity to mitigate for the loss of habitat for these critical and declining species was also incorporated into the developing plans for the emerging flood control project

The map located on Pages 6 and 7 of this issue describe the many mitigation features incorporated into the Coyote Creek Flood Control Project.

In October, 1984, the Santa Clara Valley Water District's Environmental Impact Report for the Lower Coyote Creek Flood Control Project was published but it was not until January, 1987 that the Final Environmental Impact Statement produced by the U.S. Army Corps of Engineers was finally completed and adopted.

## WORK BEGINS

Although a small test levee through a corner of the Leslie Salt pond was actually the first construction activity to occur in late 1985, the first notable event in the saga of Coyote Creek flood control was positive - the installation of the 4-acre Pilot Revegetation Plot. Before a tree was ever uprooted in the name of flood control, nearly 4,000 trees and shrubs of 16 species were planted on a 4.4 acre plot adjacent to Coyote Creek in the winter of 1986-87.

This pilot project served not only to compensate for habitat loss which was soon to occur as the flood control project got into full swing, but it also provided the District's biologists and consultants with badly needed information on

watering techniques, the best plant propagation types (or propagules) to use, and which plant associations provided the best wildlife habitat. Coyote Creek Riparian Station was awarded a contract to set up a monitoring scheme which would allow the District to determine if the methods they used on the pilot site were effective in restoring valuable riparian habitat, how long it might take, and, if problems were noted, how to make adjustments in future revegetation efforts. CCRS is now in the process of compiling a report on our first five years of annual wildlife monitoring on this pilot revegetation project. We will be summarizing our results of this important work in upcoming newsletter issues.

Construction of major flood control features near the mouth of Coyote Creek (given the designation Reach 1) began in earnest in the summer of 1988 and continued through the summer of 1989. During this phase of construction, a broad flood plain was created near the mouth of Coyote Creek and the ground was lowered to handle more water and slow it down during periods of peak flows. In addition, the creek channel itself was realigned and a series of islands were created in the middle of the creek channel.

It was during this phase of the project that the shorebird pond, which has attracted so many unusual shorebirds over the past few years, was constructed. Beneath the surface of this pond lies a portion of the old creek channel which formed a large "oxbow".

Construction in Reach 2 (areas upstream of the Waterbird Pond and Delta) began in the winter of 1990 and continued through late summer of that year. Those of us who were working at the Station during that time remember, with mixed emotions, watching (and dodging) the bulldozers as they ran rampant through willow thickets and dense riparian groves. At the same, we also watched CCRS's new building pad, high above the flood plain, take shape.

Shortly after construction was complete, Water District personnel



Gulls inhabit the newly created Waterbird Management Area prior to filling the pond with water from Coyote Creek. The shorebird nesting island can be seen on the right side of this picture. Photo by L.R. Mewaldt

were hard at work replanting vegetation to provide shade for fish and cover for wildlife. Unfortunately, the continuing drought stymied

**Waterbird Pond**

This shallow-water pond was created to mitigate the loss of salt pond habitat. Water and salinity levels are maintained by CCRS personnel to provide high quality feeding and roosting habitat for shorebirds during the spring, summer and fall. During the winter, pond level is raised to provide habitat for wintering waterfowl.

**Seasonal Lake**

A deep water lake is created each summer in the "delta" area to provide rearing habitat for any steelhead young which may have survived migration downstream from headwater spawning areas.

**Seasonal Dams**

A series earthen dams are placed across Coyote Creek each year from mid-May to mid-October to provide a deep, cool "lake" for developing steelhead and salmon fry before they return to the sea.

**Nesting Island**

This island was created in the waterbird pond to provide nesting habitat for waterfowl and shorebirds such as American Avocets, Black-necked Stilts.

**Delta Islands**

These two islands were created to provide nesting and roosting habitat for birds (particularly the Salt Marsh Yellowthroat and Tricolored Blackbird) and the provide a substrate for planting trees which will provide cooling shade for the "seasonal lake".

**Levee Slope Restoration**

The levee slopes in the vicinity of salt marsh harvest mouse habitat have been planted with native annual and perennial species to provide levee slope stabilization and also cover and food for harvest mice during periods when the marsh plain is flooded. In areas not associated with harvest mouse habitat, the levee slopes are being revegetated with native shrubs to provide general wildlife cover. Adjacent to the main channel in the "Delta" area, levee slopes are being managed to provide nesting habitat for Salt Marsh Yellowthroats and Tri-colored Blackbirds - both Candidate species for Threatened or Endangered status.

**Salt Marsh Harvest Mouse Restoration Area**

A former sludge drying lagoon and storage yard for a charcoal briquette factory were lowered to carry flood waters during storm events. These areas are also being planted with pickleweed to enlarge the area of suitable habitat for the salt marsh harvest mouse.

**Remnant Marsh**

A remnant population of the federal and state listed endangered salt marsh harvest mouse was discovered in this marsh during preparation of the final Environmental Impact Report. As a consequence, this area was preserved and will be enhanced to control invasive weeds which may crowd out remaining pickleweed plants.

**Water Control Channel**

A series of channels were constructed to allow water taken from the Waterbird Pond or from Coyote Creek to flood the salt marsh harvest mouse area during certain times of the year.

**Salt Pond**

A portion of an existing salt pond was returned to tidal action after a new flood control levee, just off the photograph, bisected the pond. Small nesting islands were created by dredging "gaps" in the outboard levee.

### Crossover

Area where flood flows from overflow channel "cross over" from one side of the creek to the other. These areas must be cleared of vegetation and reinforced with rock to prevent erosion. It is at these crossovers that most of the losses in riparian vegetation associated with the flood control project occur.

### Fish Shade Restoration

Many native fishes (especially salmon and steelhead) require cool water temperatures during the warmer months. SCWD has planted cottonwoods and willows at the ends of the crossovers to provide additional cooling shade.

### Setback Area Revegetation

A number of areas within the existing riparian corridor lacked dense vegetation. In an effort to fill in some of these gaps with riparian species, SCWD biologists identified and marked candidate areas. CCRS volunteers planted nearly 1,000 native trees and shrubs and will be maintaining these "setback" plantings for one year.

### Pilot Revegetation Site

Planted in 1987, this 4.4 acre plot was used to test a variety of different planting and irrigation methods. During the past five years since the site was planted, CCRS has been monitoring wildlife populations in the existing adjacent riparian corridor, the pilot revegetation plot and adjacent areas of the overflow channel.

Coyote Creek  
Riparian Station

### Revegetation Site 2

This "snake-shaped" 10 acre site will be planted sometime in 1993 with native riparian trees and shrubs. Wildlife monitoring will be conducted on this site also but less intensively than the Pilot Site.

efforts to replant the second major revegetation plot. It was also some time before cover (mostly in the form of non-native invasive weeds) was re-established in the denuded overflow channel.

This year, CCRS volunteers became active in the revegetation of Coyote Creek. Funded by a contract with the Water District, CCRS volunteers planted nearly 1,000 native trees and shrubs at 10 sites along about a mile stretch of Coyote Creek. These areas, called setbacks, were mentioned specifically in the E.I.R. and subsequent permits, as areas to be revegetated to provide additional cover for birds and other wildlife. (See accompanying article by Elnor Spellman in this issue.)

Coyote Creek is now in the midst of another unsettling phase of construction as work nears completion on Reach 2B (upstream to Highway 237). As was the case during earlier phases of construction, the creek bears little resemblance to the creek to which we have all become accustomed.

It should be noted, however, that during February and March of this year, when unusually heavy rains pushed flood waters over the banks of Coyote Creek, the newly installed levees and overflow channels performed their duties flawlessly, and the town of Alviso was spared yet another period of expensive cleanup and rebuilding.

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### WHAT'S IN STORE FOR THE FUTURE

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Coyote Creek and its surroundings have changed greatly in the past few years. And one thing which we have all come to learn through the process of watching

change occur is that we need not sacrifice completely river and stream ecosystems in the name of property protection and urban growth. Proper planning, however, is the **key** to riparian preservation. In many areas of the county, development has been allowed right up to the very bank tops of many of our creeks. A situation such as this affords Water District engineers few opportunities to provide flood control protection such as we have seen along Coyote Creek. Short of buying up large and expensive tracts of residential or industrial land, engineers are forced to resort to in-channel "improvements" which generally mean large amounts of concrete and rock, or, at the very least, periodic clearing of vegetation.

Long-term protection of our dwindling riparian resources depends upon cities and counties enacting (and enforcing) strong riparian protection ordinances which provide generous setbacks of development to allow for future control **and** allow riparian forest to remain.

Coyote Creek has changed just as Santa Clara Valley has changed. But we are reminded that change does not, in and of itself, necessitate the elimination of natural systems.

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# TV Documentary on Creeks

by Linda Elkind, Committee  
for Green Foothills

On Monday November, 9 at 9:30 PM KTEH, Channel 54, will broadcast a thirty minute documentary about creeks in Santa Clara County and the Bay region. The program traces the ways in which development and local land use practices effect creeks and points to the importance of creeks as dynamic and living habitats. Today, two-thirds of the miles of creeks in Santa Clara County are flanked by moisture-loving natural vegetation. We must make choices if we hope to save these miles of green-banked creeks from becoming lifeless, ultra-efficient cement banked drainage ditches.

The program provides a forum for homeowners, biologists, flood control engineers, and realtors to discuss ways natural waterways might be preserved in the midst of urban development. We walk the creekbeds of neighborhoods where homeowners have built right next to the creeks. If their homes had been set back and the vegetation kept intact, they would not be forced to choose between floods or massive concrete ditch. We discover that some urban streams that we have left to die, with nurturing, can be revived.

In summary, the documentary discusses the critical need to provide flood control, preserve wildlife habitat and also to establish greenways and maintain water quality.

# NEWS FROM THE ATLAS

by Bill Bousman

The Santa Clara County Breeding Bird Atlas, having started in 1987, is now in its final year. As we started this year we were unsure whether we could complete the Atlas in 1992. The Atlas Steering Committee thought a great deal about how we should organize our final year to ensure success. The problem really had three components; first, could we gain access to private land in those blocks where no public access was possible? Second, would we have enough volunteers to do the atlasing even if we gained access? Third, how would we determine when we had enough coverage within an atlas block?

We use a grid of 5-kilometer squares to define the blocks in which we do our breeding bird atlas work. The county encompasses 168 of these blocks, although in some cases an edge block contains far more of the adjacent county than of Santa Clara. To make the atlasing task more manageable we have also divided the county into seven regions, each with its own Regional Coordinator. These regions correspond roughly to the geography of the county with the exception of Regions Six and Seven, both of which include the Diablo Range. In this case we have divided the Diablo Range into northern and southern parts just to get the number of blocks down to a more manageable size.

We decided at the start of the year that our first step would be to establish priorities for the blocks that must be covered in our final year. As a basis for setting the priorities, we estimated what species we "expected" in each block. In some cases this estimate was an educated guess, but in other blocks it was developed by careful analysis of topographic maps and comparisons to other blocks where there was significant coverage of similar habitats.

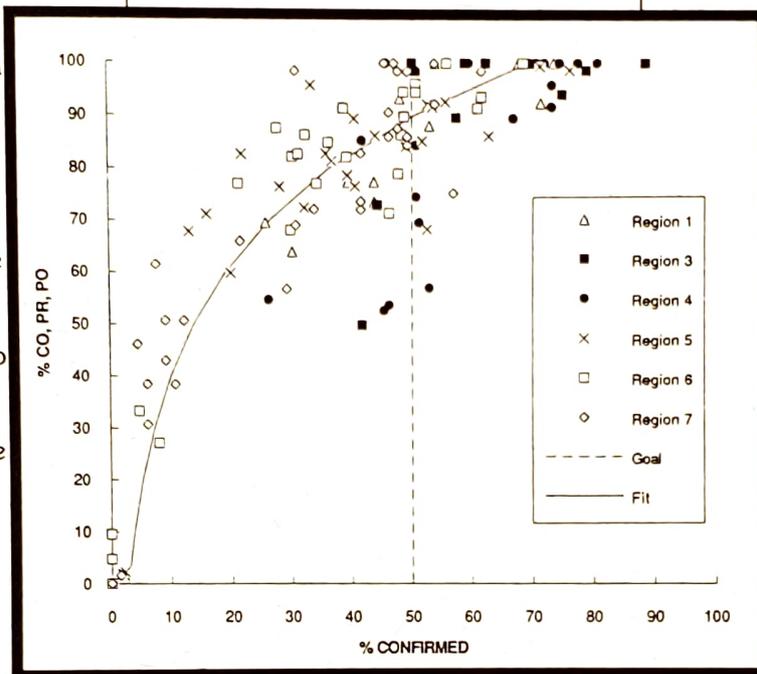


Figure 1. Plot of percent CO/PR/PO as a function of percent CO.

Once we had obtained our expected species list we then calculated the percentage of those species that were Confirmed in each block and also the percentage that were either Confirmed, Probable, or Possible. We plotted the percent CO/PR/PO as a function of the percent Confirmed as shown in **Figure 1** for all of the atlas data except Region Two. We also show a fit of these data that represents our combined atlas experience.

The data in the figure show two things. First, it is always easier to find Possible or Probable evidence

than to Confirm breeding. This was no big surprise. By the time we have met our goal of 50% Confirmed species we have normally found 87% CO/PR/PO species. Second, our coverage in Regions one, Three, and Four is quite good - the problem for our final year is to obtain similar coverage in Regions Five, Six, and Seven.

We established our priority list for the final year by dividing the blocks with less than 50% Confirmed species into five categories. Those blocks with less than 15% CO or 52% CO/PR/PO were classified as "priority one", those with less than 25% CO or 68% CO/PR/PO were "priority two" and so forth. One additional modification to this priority listing was how we treated edge blocks. If the amount of Santa Clara County in a block was less than 30% we added two points to the priority score. Thus, a priority one block is moved to priority three for an edge block with little county land. If the county

land was greater than 30% but less than 70% a single

point was added to the priority score.

Once we have prioritized the blocks with inadequate coverage, we were ready to deal with the other two issues, access to private land and volunteer time. We contacted land owners, when we could find them, by phone, letter, or through friends and acquaintances. Always a slow process, we were amazingly successful in Region Six where regional coordinator Mike Rogers was our charming pointman and successfully opened up the entire region. We did not do so well in Region

Cont'd. from previous page.

Seven where landowners along the Stanislaus and San Benito County lines have been unwilling to let us on their land. In addition, the owners of a block in the southern Santa Cruz Mountains that has no public access have also refused to allow us on their property. Despite these setbacks, the efforts of our atlasers have been astounding. At the start of the year, 28 blocks were at the priority one level and a total of 54 blocks were either priority one, two, or three. As of the end of July,

there were only 5 priority one blocks remaining - and each of these was a block we have been denied access. Fourteen blocks remained at priority one to three level and there is a good chance that a few of these will move to priority four status before the end of the atlasing season. This has been an incredible effort on the part of many devoted volunteers. Each of the atlasers has a story to tell and some of these will be shared in future issues of **RipariaNews**.

gasoline pump is used to lift water from the creek into a 275 gallon tank (a used wood glue container) mounted on a trailer which is then driven to the individual sites. A small battery powered pump is then used to deliver water from the tank to each plant basin. If this sounds like a lot of work - it is. We are all happy and encouraged by the fact that the plants and trees have thrived under our care. We will also be happy when fall and winter provide cool weather and the rains (hopefully!!) enable us to reduce watering.

## VOLUNTEERS UNDERTAKE HABITAT RESTORATION

By Elinor Spellman

This spring, a dedicated band of CCRS volunteers prepared and planted ten sites along the west bank of Coyote Creek with a mix of 17 different native trees, shrubs and herbaceous plants. These ten sites comprised areas of the existing riparian corridor that were relatively open or barren of native vegetation.

Except for cuttings of California Blackberry, mulefat and arroyo willow, and transplants of beardless wild rye, all plants were supplied by the Santa Clara Valley Water District. Preparation, planting and maintenance of the sites (which encompass nearly 1/2 acre) is being done under contract to the Water District.

The first planting took place on February 23. Heavy rains in March and April, and the necessity of having some rubble and heavy scrap cleared from one of the sites, caused some delays. The last area was planted on April 26.

We followed specifications prepared by the Habitat Restoration Group for construction of planting basins, planting methods, preparation of wire browse-guards for willows, and collection of pole-cuttings on site. We will provide maintenance of each site (consisting mainly of periodic weeding and watering) for one year. For the most part it has been possible to

control weeds by having volunteer groups come out on an occasional basis to spend a morning working at for or five sites. The watering is done on a weekly basis by Bruce Katanano of our CCRS staff and by volunteers. A

CCRS has benefitted from carrying out this project, first, because we learned how to install and care for native plants, and second, we learned that we have enough willing and able volunteers to carry a project like this through. An additional benefit is the pleasure of watching the re-introduced native plants (approximately 1,000) thrive in areas that formerly were covered mainly by non-native invasive plants and grasses. In fact, our success has been so great that we have



Volunteers prepare one of the ten sites for planting. Photo by David Johnson.

come nowhere near the margin for uses allowed by the Water District. By next spring, when the plants have been in the ground for one year, they should be so well established that they will be able, on their own, to withstand re-colonization by non-natives.

To date, in excess of 400 person/hours have been spent on the project by volunteers and CCRS staff. The plants and wildlife owe their thanks to the following dedicated volunteers:

John Allen	Virginia Langdon-Lassagne
Virginia Bischoff	Chris Lonowski
Marilyn Bunzo	Ken McKinsey
Cynthia DiGiovanni	Laura Mello
Jerry Ellis	Gwen Parker
Dave Grover	Paul Robertson
Carol Harris	Kate Sturtevant
Tracy Hemmeter	Fern Walters

Staff members Chris Otahal, Mike Rigney and Bruce Katano also contributed their time and talents. Bruce Katano shared the weekly watering responsibilities.

## Bander Training Class

A new training class for prospective banders begins October 29. Come and learn the skills you need to become a volunteer bander at CCRS. In this exciting course you will learn how to identify birds in-hand, how to age and sex them, as well as make various body measurements. The class runs for three weeks with one evening and one weekend day lecture and field sessions. Call Kristin Shields at CCRS (408) 262-9204 for more information.

# COME TO AVOCET FESTIVAL '92

By Kristin Shields

CCRS will be participating in **Avocet Festival '92** - San Francisco Bay National Wildlife Refuge's Annual Wildlife and Nature Arts and Crafts Sale to be held at the Refuge Headquarters in Newark on November 7 and 8 from 9 am to 5 pm. In addition, to the arts and crafts, an Environmental Fair will include wildlife programs such as bird banding, bird walks, nature walks, films and videos. Many Bay Area environmental groups, including CCRS, will be recruiting new

members and providing information tables on topics ranging from coast cleanup to the ecology of San Francisco Bay. A raffle of donated items will also be held.

This is the perfect opportunity to buy beautiful wildlife arts and crafts for yourself or wildlife lovers on your gift list. We will be signing up new members and selling T-shirts, and patches. Come out and support CCRS and make it a successful fair for everyone. If you would like to spend some time at our booth give Kristin Shields a call at (408) 262-9204.

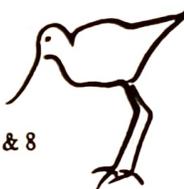
San Francisco Bay Wildlife Society presents:

## AVOCET FESTIVAL '92

featuring  
12th Annual Wildlife and Nature  
Arts and Crafts Sale



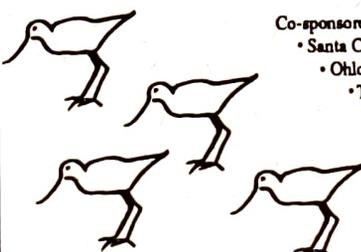
Saturday and Sunday, November 7 & 8  
9:00am to 5:00pm



San Francisco Bay National Wildlife Refuge  
One Marshlands Road, Fremont  
(Exit Thornton Ave. off Highway 84, east end of Dumbarton  
Bridge. Follow Thornton south one mile to Refuge entrance.)

Pottery • Paintings • Photography • T-Shirts  
Wood Sculpture • Jewelry • Raffle • Food  
Environmental Fair • Wildlife Programs  
and More!

*Help finance 1993's nature programs at the Refuge by doing your Christmas shopping early! At the same time, enjoy some of the fine educational activities that are part of Avocet Festival '92!*



Co-sponsored by:

- Santa Clara Valley Audubon Society
- Ohlone Audubon Society
- Tri-City Ecology Center
- Citizens Committee to Complete the Refuge

Phone (510) 792-4275  
for information

# NEW MEMBERS

We wish to welcome the following new members who joined CCRS in recent months.

Jea Able	Regular
Jane and William Becker-Haven	Family
Will and Margaret Bechart	Family
Sandip Bhattacharya	Regular
Chris Bloxson	Active
Jack and Lexie Fry	Family
Diane Dube	Regular
Amy Evans	Regular
Arleen Feng	Active
Mary Fernandez	Regular
James and Carolyn Hammond	Family
Mark and Patty Hermann	Active
Barbara Hoover	Active
Kathleen Human	Active
Dorothy Johnson	Active
Eric Johnson	Active
Joan Kaeler	Regular
Lexine Killian	Regular
Virginia and Barry Langdon-Lassagne	Active
David Lee	Regular
Nick Lethaby	Regular
John McLemore and Clysta Seney	Family
Native Revival Nursery	Regular
Randi Nedom	Family
Virginia Reynolds	Regular
Eric Rosenblum	Regular
Jim Royer	Regular
Bob Royer	Regular
Mark and Sharon Sheeler	Family
Katie Sieving	Regular
Linda Spahr	Active
Joyce Swierbut	Regular
M. Zeilinger	Active

## MEMBERSHIPS IN CCRS

Member	.....	\$20 annually
Senior or Student	..	15 annually
Family	.....	25 annually
Supporting	.....	35 annually
Sustaining	.....	90 annually
Corporate	....	100 + annually
Life	.....	600 single payment*
Patron	.	5,000 single payment*

Life Membership payments and 10% of all other membership payments and general contributions go into the CCRS Endowment Fund. CCRS is a non-profit corporation with U.S. and California tax exempt status. Five dollars from the dues of each CCRS-SCCBB Atlas Membership goes to the Atlas program. We acknowledge Memorial contributions in **RipariaNews**. We welcome bequests, including those of real property.

\*Or in 4 or installments

## SCVAS NATURE SHOP

The Santa Clara Valley Audubon Society Nature Shop will open on the following Fall Saturdays: November 14, 21, and 28 and December 5, 12 and 19 for holiday shopping. The Nature Shop was established to raise money for SCVAS activities in Santa Clara County. Each Nature Shop purchase supports SCVAS conservation, environmental education and research programs.

The Nature Shop carries everything a wild bird fancier might need in a wide selection of birding-related merchandise.

For more information about the Nature Shop call Cecily Harris at 408 252-3747 or stop by. SCVAS Nature Shop is located in the Cupertino Environmental Center 22221 McClellan Road.

**C**oyote Creek Riparian Station is a non-profit California membership corporation with United States and California tax exempt status. CCRS is dedicated to research on, and the restoration and management of, riparian and wetland habitats.

Coyote Creek Riparian Station operates in cooperation with the Santa Clara Valley Water District, San Jose/Santa Clara Water Pollution Control Plant, U.S. Fish and Wildlife Service, California Department of Fish and Game, and the San Francisco Bay National Wildlife Refuge.

**RipariaNews** is published quarterly for the information of our CCRS membership, the personnel of the several cooperating federal, state, and local agencies, and for other organizations and individuals concerned with the flora and fauna of riparian and wetland habitats.

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